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NATIONAL BUREAU OF STANDARDS
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(Supersedes LC 235 and Form Letter PC 113)

INFORMATION ON ULTRAVIOLET TRANSPARENCY OF WINDOW MATERIALS AND FABRICS.

Data on the ultraviolet transparency of various kinds of glass and organic substitutes for window glass (Vitaglass, Sunlit, Helioglass, Uviol Jena, Neuglas, Corning Corex D, Quartz Glass, Celoglass, Cellophane, Tracing cloth, etc.) are given in Bureau of Standards Research Paper No. 113, entitled "Data on Ultraviolet Solar Radiation and the Solarization of Window Materials", which is obtainable from the Superintendent of Documents, Government Printing Office, Washington, D.C., at 15 cents a copy, prepaid. Supplemental data are given in the accompanying table.

Data on the transparency of various kinds of fabrics, feathers, etc., to ultraviolet radiation, are given in Bureau of Standards Research Paper No. 6, "Transmission of Ultraviolet Radiation Through Various Kinds of Fabrics", obtainable from the Superintendent of Documents, at a price of 5 cents a copy, prepaid.

Data on the depth of penetration of radiation of various wave lengths (ultraviolet, infrared) are given in a paper on "Spectral Characteristics of Light Sources and Window Materials" published in The Transactions of the Illuminating Engineering Society, XXIII, p. 251; March, 1928.

Data on the amount of ultraviolet solar radiation available for therapeutic purposes at various hours of the day and different seasons of the year, are given in Bureau of Standards Research Papers Nos. 318, "Measurement of Extreme Ultra-Violet Solar Radiation by a Filter Method" and 370, "A Balanced Thermocouple and Filter Method of Ultraviolet Radiometry with Practical Applications", obtainable from the Superintendent of Documents at 10 cents each, prepaid.

In order to insure effective biological action of sunlight, the Council on Physical Therapy (Journal, American Medical Association, vol. 95, p. 864, 1930; reprint revised November, 1931) requires, for acceptance, that the transmission through window glass and substitutes for window glass, after complete solarization, shall not be less than 30 per cent of the incident radiation at wave length 302 mμ (standard thickness 2.3 mm). The Federal Specification for ultraviolet transmitting glass has similar requirements (Federal Specification DD-G-476, March 29, 1932; obtainable from the Superintendent of Documents, at 5 cents a copy, prepaid).

TABLE I

Per cent transmission of various window glasses at 302mμ, when new and after exposure at a distance of 15 cm from a 110-volt horizontal Uviarc quartz mercury lamp for ten hours; and of duplicate samples exposed to the sun and weather since the date indicated in column 7. Thickness of glasses, 2.3 mm.

Tests of glasses that have been solarized for 5 to 6 years show that, after exposure to the summer sun for about 3 months, the transmission becomes stabilized and remains practically constant (see column 5, 6, and 7).

Trade Name	No. of Samples Tested	Average Per Cent Transmission: New	After Exposure to Lamp	After Exposure to Sun: To Oct. 5, 1932	To Nov. 1, 1934	Since
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Brephos(	3	68	50	57	56	March, 1931
(	3	64	47	54	53	Feb., 1932
Corex D	6	67	65	66	66	April, 1932
*Cosmos	2	72	45	55	55	May, 1931
*Helioglass(	4	64	45	52	52	Dec., 1929
(	2	69	47	56	56	Nov., 1931
Quartz Glass	1	92	92	92	92	----------
Sunlit(	3	72	47	55	55	August, 1930
(	3	68	45	52	52	April, 1932
Uviol-Jena(	3	58	39	48	48	April, 1929
(	6	69	55	64	64	May, 1932
Vitaglass(	3	63	31	42	41	March, 1931
(	3	55	29	38	36	April, 1932

Standard thickness Lustraglass transmits 15 to 20 per cent at 313 mμ when new (10 to 15 per cent after exposure to the sun). At 302mμ, Lustraglass transmits about 2 per cent, while the special glasses, listed above, transmit upwards of 40 per cent.

(*) Domestic distribution discontinued.